

In the Claims:

1. (Original) A method for scheduling frames comprised of data units in a communications node, the communications node having a plurality of queues for storing the data units and a hierarchical arrangement of schedulers for scheduling the frames, the method comprising the steps of:
selecting, at a particular scheduler in the hierarchical arrangement, a queue from which a frame of the frames may be sent and accrediting any subsequently received grants at the particular scheduler to the queue;
starting the sending of the data units of the frame from a head of the queue;
determining the size of the frame at the head of the queue;
determining, at the particular scheduler, a value equal to a count of the grants issued for the queue minus a size of the frame; and
selecting, at the particular scheduler, another queue from which additional ones of the data units may be sent responsive to the value being zero.
2. (Original) The method of claim 1 further comprising the steps of:
setting the count of the grants equal to the value; and
repeating the steps of claim 1 responsive to the value being greater than zero.
3. (Original) The method of claim 2, further comprising the steps of, responsive to the value being less than zero:
setting the count of the grants equal to the value;
decrementing the count of the grants with each new grant of the subsequently received grants accredited to the queue; and
selecting, at the particular scheduler, the another queue from which data units may be sent responsive to the value being zero.
4. (Original) The method of claim 3 wherein the step of selecting the queue is performed recursively for the schedulers at different levels of the hierarchical arrangement.

5. (Original) The method of claim 3 wherein the step of selecting the queue is performed iteratively for the schedulers across different levels of the hierarchical arrangement.
6. (Original) The method of claim 3 further comprises the steps of:
 - selecting, at a particular port selection scheduler of the schedulers, a port of the communications node to which the data units will be outputted; and
 - selecting, at a particular class selection scheduler, a class within which the data units will be prioritized.

7. (Original) An arrangement of schedulers for scheduling traffic in a communications node having a plurality of queues, each queue of the plurality of queues for storing a portion of the traffic in units of the traffic, the arrangement of schedulers comprising:
a plurality of the schedulers of which each scheduler of the plurality of the schedulers is for scheduling the traffic directly from a unique portion of the queues and is associated with a respective register of a plurality of registers for storing information corresponding to an aspect of the respective unique portion of the queues; and
an output scheduler being operable to schedule the traffic from the plurality of schedulers in dependence upon the information stored in the plurality of registers.
8. (Original) The arrangement of claim 7, wherein:
the arrangement further comprises a plurality of intermediate schedulers of which each intermediate scheduler of the plurality of intermediate schedulers is for scheduling the traffic from a unique portion of the plurality of schedulers and is associated with a respective intermediate register for storing a number corresponding to an aspect of the respective unique portion of the schedulers; and
the output scheduler is further operable to schedule the traffic from the plurality of intermediate schedulers in dependence upon the number stored in the respective intermediate register.
9. (Original) The arrangement of claim 8 wherein the information comprises a summation of the units of the traffic in the unique portion of the queues.
10. (Original) The arrangement of claim 8 wherein the information comprises a summation, over the unique portion of the queues, of a minimum of the units of the traffic in each of the queues of the unique portion of the queues and an allowable burst size denominated in the units of the traffic of each of the queues of the portion of the queues.
11. (Original) The arrangement of claim 10 wherein the number reflects a summation of the information stored in each of the registers associated with the plurality of the schedulers.

12. (Original) The arrangement of claim 11 wherein the units of the traffic are asynchronous transfer mode (ATM) cells.

13. (Original) A method for scheduling traffic in a communications node having a plurality of queues for storing units of traffic to be scheduled and a hierarchical arrangement of levels of traffic schedulers, comprising the steps of:
- initiating a scheduling decision set for a particular time interval by selecting, at a first traffic scheduler of the traffic schedulers in a first level of the levels, a second traffic scheduler of the traffic schedulers from a next lower level of the levels; and
- completing the scheduling decision set for the particular time interval by selecting, at the second traffic scheduler, a queue from which a next unit of the traffic will be scheduled.
14. (Original) The method of claim 13, wherein selecting the second traffic scheduler corresponds to selecting a class of the traffic serviced by the communications node.
15. (Original) The method of claim 14, wherein the step of initiating further comprises first selecting, at a third traffic scheduler of the traffic schedulers in a next higher level of the levels, the first traffic scheduler.
16. (Original) The method of claim 15, wherein selecting the first traffic scheduler corresponds to selecting a port of the communications node.
17. (Original) The method of claim 16 wherein the units of the traffic are asynchronous transfer mode (ATM) cells.
18. (Original) The method of claim 17 wherein the particular time interval has a duration corresponding to an amount of time taken by the communications node to switch an ATM cell of the ATM cells.